May 14, 1946. J. H. PALMER 2,400,368

TOOL HOLDER

Filed Aug. 7, 1944

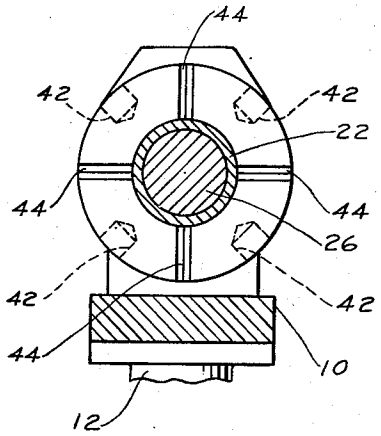

Fig. 1

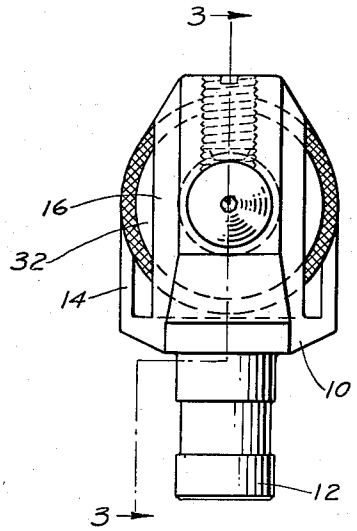

Fig. 2

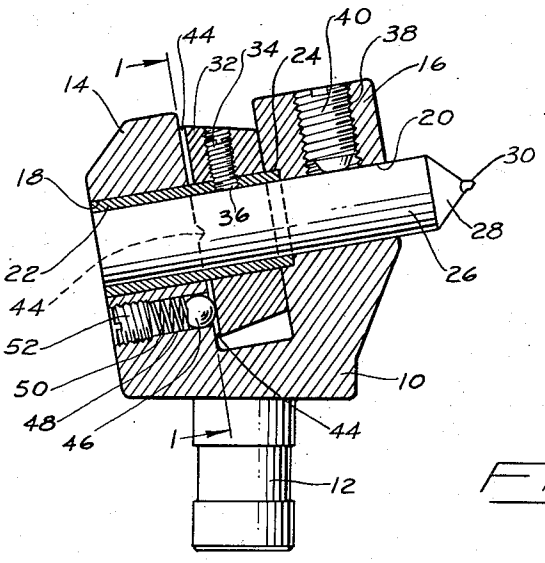

Fig. 3

INVENTOR.
JACOB HARRY PALMER
BY
ATTORNEY

Patented May 14, 1946 2,400,368

UNITED STATES PATENT OFFICE

2,400,368

TOOLHOLDER

Jacob Harry Palmer, Detroit, Mich., assignor to Ex-Cell-O Corporation, Detroit, Mich., a corporation of Michigan

Application August 7, 1944, Serial No. 548,363

4 Claims. (Cl. 125—11)

This invention relates to a tool holder and more particularly to a holder for indexing a diamond tool, such as used in dressing a grinding wheel.

An object of the invention is to provide a supporting member which permits rotation of a diamond tool journaled therein; to provide resilient stop means for positioning the tool in predetermined angular positions; and to provide positive holding means for the tool to prevent its rotation relative to the holder.

Other objects and advantages of the invention will be more fully understood from the following description taken in connection with the accompanying drawing in which:

Fig. 1 is a transverse sectional view taken on line 1—1 of Fig. 3 showing a preferred embodiment of my invention;

Fig. 2 is an end elevational view of Fig. 3; and

Fig. 3 is a longitudinal sectional view taken on line 3—3 of Fig. 2.

Referring to the drawing, I have shown a body portion 10 having a shank 12 to be received in a support (not shown). The body portion 10 is provided with spaced aligned bearing members 14 and 16 having aligned openings 18 and 20. The opening 18 is larger in diameter than the diameter of the opening 20 for receiving a bushing 22. The opening 20 is counterbored as at 24 to a diameter equal to the diameter of the opening 18 for receiving the inner end of the bushing 22. The internal diameter of the bushing corresponds to the diameter of the opening 20. A diamond tool 26 of cylindrical form is received in the bushing 22 and opening 20 for relative rotation with respect to the bearing members 14 and 16.

The diamond tool 26 has a conical end 28 which, at the tip thereof, receives a diamond 30. As the point of the diamond becomes worn, the tool 26 can be angularly indexed so that a new cutting edge is presented to the work. It is important that the diamond point is not moved axially of its support during the indexing of the tool so that its position with respect to the work is not altered from its previously adjusted position. This has been accomplished by securing a collar 32 on the outer periphery of the sleeve 22. The collar 32 is positioned between the bearing members 14 and 16 and has its opposite faces in sliding fit engagement respectively with the adjacent faces of the bearing members 14 and 16. A set screw 34 is received in a threaded, radially extending opening in the collar 32 and the inner end of the screw 34 extends through an opening 36 in the sleeve 22 into holding engagement with the outer periphery of the tool 26.

The bearing member 16 is provided with a radially extending screw threaded opening 38 which receives a set screw 40 adapted to engage the outer periphery of the tool 26 for locking it in adjusted angular position. The collar 32 and sleeve 22 prevent axial movement of the tool 26 and the screw 40 prevents angular movement of the tool 26 so that the point of the diamond 30 is accurately held in relation to the work at all times, including angular adjustment.

The outer periphery of the collar 32 is preferably knurled to facilitate turning by hand. If desired, peripherially spaced openings 42 may be provided for receiving a suitable tool for turning when the frictional resistance between the thrust faces of the collar 32 with the faces of the bearing members 14 and 16 and the resistance between the outer periphery of the sleeve 22 and inner periphery of the opening 18 is greater than could be readily overcome by turning with the hand. It is understood that to obtain precision, these surfaces are machined to close accuracy so that there is frictional resistance, thereby maintaining accurate positioning of the tool 26.

In the form of the invention shown, one face of the collar 32 is provided with spaced radially extending grooves 44 for receiving a resilient stop or positioning member. The stop comprises a ball 46 carried in an opening 48 formed in the bearing member 14. A spring 50 abutting against a screw threaded plug 52 in the outer end of the opening urges the ball 46 into one of the grooves 44. As the collar 32 is rotated, the ball 46 yieldingly resists rotation at predetermined locations so that the operator can determine the angular position of the tool 26.

It will be understood that various changes including the size, shape and arrangement of parts may be made without departing from the spirit of my invention and it is not my intention to limit its scope other than by the terms of the appended claims.

I claim as my invention:

1. A tool holder comprising, a body portion having a shank adapted to be received in a support, spaced aligned bearing members on said body portion, a tool rotatably mounted in said bearing members, a collar between and in bearing engagement with said bearing members and detachably secured to said tool for rotary adjustment therewith, and resilient stop means coacting between said collar and one of said bearing members for preventing free rotation of said tool relative to said bearing members.

2. A tool holder comprising, a body portion

having a shank adapted to be received in a support, spaced aligned bearing members on said body portion, a sleeve within said bearing members, a tool within said sleeve, a collar between said members carried by said sleeve, a lock screw in said collar extending through an opening in said sleeve for locking engagement with said tool to locate said tool axially, and a lock screw in one of said bearing members for locking said tool against rotary adjustment.

3. A tool holder comprising, a body portion, spaced aligned bearing members on said body portion, a sleeve within said bearing members terminating short of one end of one of said bearing members, a tool within said sleeve, a collar between said bearing members carried by said sleeve, a lock screw in said collar extending through an opening in said sleeve for locking engagement with said tool, a lock screw in one of said bearing members beyond the end of said sleeve for locking said tool to said bearing member, and resilient stop means for preventing free rotation of said tool relative to said bearing members.

4. A tool holder comprising, a body portion, spaced aligned bearing members on said body portion, a sleeve within said bearing members and bridging the space between said bearings, a collar on said sleeve between said bearings, a tool in said sleeve, locking means between one of said bearing members and said tool, locking means between said collar, said sleeve and said tool, and a spring urged detent in the face of one of said bearing members adjacent said collar, the end face of said collar adjacent the bearing carrying said detent having spaced recesses for receiving said detent.

JACOB HARRY PALMER.